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SCIENTIFIC NOTES AND NEWS.

THE RUMFORD MEDAL.

At the annual meeting of the American Academy of Arts and Sciences held in Boston on May 11th the report of the Rumford Committee which was there presented contained the following important statement and recommendation:

"The committee has also considered at length the question of an award of the Rumford medal. The claims of various investigators and inventors have been considered with great care, and more than one among them appeared to be deserving of such recognition. After prolonged consideration the Rumford Committee has voted at two separate sessions (in accordance with long-established custom) to recommend to the Academy an award of the medal to Professor James E. Keeler, now Director of the Lick Observatory, for his application of the spectroscope to astronomical problems, and especially for his investigations of the proper motions of the nebulae, and the physical constitution of the rings of the planet Saturn, by the use of that instrument."

The report of the Committee was presented by the Chairman, Professor Cross, who explained at some length the particular nature and merit of the investigations of Professor Keeler for which the award of the Rumford premium was proposed, after which the Academy voted unanimously to adopt the recommendation of the Committee.

The last previous award of the medal was to Mr. T. A. Edison, in 1895. Among others who have recently received it are Professors Pickering, Michelson, Langley and Rowland.

THE COMING MEETING OF THE BRITISH ASSOCIATION IN BRISTOL.

We take from the *British Medical Journal* the following particulars in regard to the preparations for the meeting of the British Association in Bristol from September 7th to 14th. The latest published list of subscriptions shows that over £3,400 has been promised, that the executive need not fear being short of the prime necessity that makes such a visit a success. The Victoria Rooms are to be fitted up for the reception room, the large hall being used for that

purpose and the small hall as a smoking room. The sectional meetings will be held in the school room of the Victoria Chapel, the Fine Arts Academy, the museum lecture room, University College, the Blind Asylum Hall, the Hannah More Hall, the Merchant Venturers' Technical College, and the Park Place Schools. The Drill Hall will be fitted up as a lounging room, a band (the Royal Horse Artillery) provided, and various objects of interest shown; this will be open to all members and associates of the Association free during the afternoon, but in the evening the hall will be open to the public at a charge. The President's address and the lectures will be given in the Colston Hall, as will also be the *soirée* given by the General Committee. The other *soirée* will be given in the buildings and grounds of Clifton College on the invitation of the Bishop of Hereford, the Headmaster, and Mrs. Glazebrook.

In the Zoological Gardens will be a biological exhibition at which many objects of great scientific interest will be shown. Arrangements have been made with the authorities of the Marine Biological Station at Plymouth to show some of their most interesting tanks. A large number of excursions have been arranged to various places of interest—namely, Wells, Glastonbury and the lake villages, Cheddar Cliffs and Caves; Bath, where the corporation will show the magnificent baths recently opened; Bradford-on-Avon, with its Saxon church and Norman bridge; Tortworth, on the invitation of Lord Ducie; possibly Salisbury and Stonehenge; the works at Swindon; the docks at Avonmouth, with a trip down the river to visit the Channel Fleet, if the Admiralty will allow it to come; and many others of interest to geologists, engineers and botanists. A new feature will be introduced in short bicycle rides personally conducted to many of the Roman or British camps around Bristol.

The literature usually distributed is in a forward state, and the handbook will, it is hoped, be the most complete ever given out at a meeting of the Association. The articles are now all in the printer's hands. Eight gentlemen have kindly consented to give garden parties, and Clifton College masters will entertain a large party on September 12th. The invitations,

issued a month or two ago, have been largely responded to, and many foreigners from the Continent are expected, as well as a strong contingent of scientific men from the Dominion. During the week the International Conference on Terrestrial Magnetism and Atmospheric Electricity will hold its meetings in association with Section A (Mathematics and Physical Science). There will be no Section I (Physiology), as the international meeting will be held at Cambridge only a short time previous.

LIQUID HYDROGEN.

ACCORDING to the London *Times* Professor Dewar liquefied hydrogen on May 10th at the Royal Institution and exhibited the liquid to Lord Rayleigh, who was fortunate enough to be on the premises at the time. Hydrogen has been liquefied before—in theory, but Professor Dewar has actually produced the liquefied gas to the amount of half a wine-glassful in five minutes, by a process which would equally have produced a pailful had the requisite supply of pure hydrogen been forthcoming. This is a unique and unprecedented feat. Liquid hydrogen in quantity is not only of enormous scientific interest in itself, but is also of immense importance as placing a new and potent instrument in the hands of investigators who have hitherto found their progress barred by its absence. The boiling point of the liquid may be placed at from thirty to thirty-five degrees of absolute temperature, or, in other words, at about 240 degrees below zero on the Centigrade scale. Some conception of the degree of cold attained may be gathered from the fact that a tube closed at the lower end, when emersed in the liquid, was almost instantaneously filled with solid air. It may be observed, as a matter of scientific interest, that the density of the liquid far exceeds that arrived at by calculation. There is reason to believe that it will be found to be about 0.6, water being unity. This result would agree very closely with the density of hydrogen when occluded by palladium, as established by Professor Dewar 25 years ago. Helium is a rare gas which has hitherto resisted all attempts to effect its liquefaction. It is stored in considerable quantity at the Royal Institution, and was also liquefied on Tuesday by

the use of the liquid hydrogen. Its boiling point appears to lie not very far from that of hydrogen itself. Liquid hydrogen will never be as cheap as liquid air, because nature does not supply the gas in equal abundance. But nothing except the cost now stands in the way of producing liquid hydrogen in any quantity that science may require, whether for investigation of its own properties or for the prosecution of various lines of research into the constitution of matter in general.

GENERAL.

THE Council of the Royal Geographical Society have awarded one of the two Royal medals to Dr. Sven Hedin for his work in Central Asia, and the other to Lieutenant E. A. Peary, United States Navy, for his explorations in Northern Greenland. The Council have also made the following awards: The Murchison grant to Mr. H. Warington Smyth for his several journeys in Siam; the Back grant to Mr. George P. Tate for his survey work in Afghanistan, Beluchistan, especially Makran, Aden and on the Indus; the Gill memorial to Mr. Edmund J. Garwood for his geographical work in Spitsbergen during two seasons, in company with Sir Martin Conway; the Cuthbert Peek grant to Mr. Poulett Weatherley for his exploration of the region between Lakes Mweru and Bangweolo. The following foreign geographers and travellers have been elected honorary corresponding members: Don Marcos Jimenes de la Espada, Don Francisco Moreno, Buenos Ayres; Marquis of Rio Branco, Brazil; Dr. Thoroddsen, of Iceland; Professor Ratzel, of Leipzig.

PORTRAITS of Mr. Frederick Fraley and of Professor J. Peter Lesley were presented to the American Philosophical Society, Philadelphia, on May 20th. Mr. Fraley, who has long been President of the Society, and is about to celebrate his 94th birthday, was present. Professor A. H. Smith, of the Central High School, stated that the Society now possessed portraits of all its Presidents, beginning with Franklin. In accepting the portrait of Professor Lesley, Mr. W. A. Ingram dwelt upon his services to geology and geodesy. Professor Lesley has been for many years one of the Vice-Presidents of the Society and had previously filled the offices of Li-

brarian and Secretary. The portraits, both of Mr. Fraley and Professor Lesley, were painted by Mrs. Margaret Lesley Bush Brown, daughter of Professor Lesley.

MR. C. S. TOMES, F.R.S., has been admitted a Fellow of the Royal College of Surgeons of England.

LIEUTENANT ROBERT E. PEARY, U. S. N., was the guest of honor at the Geographical Society's annual dinner in Philadelphia on May 18th.

THERE is a vacancy in the position of Photographer in the United States Naval Observatory at Washington, for which an examination chiefly based upon practical questions in photography and experience in the subject, will be held on June 7th. The salary of this position is \$1,200 per annum.

THERE is also a vacancy in the grade of aid, Department of Biology, United States National Museum, with a salary of \$50 per month, for which an examination will be held on June 15th. The subjects of the examination can be obtained by addressing the United States Civil Service Commission, Washington.

PROFESSOR E. O. KENDALL has presented to the University of Pennsylvania his mathematical library of about one thousand volumes.

THE *New York Medical Record* quotes a report that Mrs. Caroline Croft left \$100,000 to Drs. Henry K. Oliver and John Collins Warren, of Boston, for the purpose of making investigations to ascertain some method of curing cancer, consumption and other diseases which are now regarded as incurable.

AN Audubon Society for the State of Indiana was organized at Indianapolis on April 26th. The meeting was addressed by the Governor of the State, the President of the University of Indiana and others.

THE regular spring field meeting of the Indiana Academy of Science was held at Bloomington, April 28th-30th, under the auspices of the Faculty of Sciences of Indiana University. Among the excursions was one to the caves east of Mitchell, the blind fish of which have been described by Professor C. H. Eigenmann.

THE House Committee on Interstate and

Foreign Commerce has favorably reported the Senate bill appropriating \$350,000 for the Commercial Museums' Exposition at Philadelphia.

THE Presidents of the Institute of Chemistry, the Society of Chemical Industry, and the Society of Public Analysts, London, have issued invitations to a reception on Tuesday, May 24th.

THE Royal Colonial Institute, London, will hold its annual *conversazione* at the Natural History Museum, Cromwell-road, on June 29th.

THE Lord Mayor of London gave a banquet on May 4th to the medical profession at the Mansion House. Speeches were made by Sir Samuel Wilkes, President of Royal College of Physicians; Sir William MacCormack, President of the Royal College of Surgeons; Sir William Turner, Lord Lister and others.

THE Organizing Committee of the Thirteenth International Medical Congress, held its first meeting on April 23d. The officers of the Committee are: President, Professor Brouardel; Vice-Presidents, Professors Bouchard and Marey; General Secretary, Professor Chauffard; Treasurer, M. Duflocq. The formal opening of the Congress has been provisionally fixed for August 2, 1900.

THE Iron and Steel Institute of Great Britain held its spring meeting in the Hall of the Institution of Civil Engineers, London, on May 5th and 6th. The President, Mr. E. P. Martin, occupied the chair, and a number of interesting papers were presented. The autumn meeting of the Institute will be held in Sweden.

WE have noted the donation made to Aberdeen, by Miss Cruickshank, of a sum of £15,000, for the formation of a botanic garden. We learn from the *British Medical Journal* that this sum is to be handed over to trustees, who will also form the Board of Management. These trustees are the Principal and the professors of botany and mathematics in the University. The money is to be employed by them in the laying out and maintaining of a botanic garden, with all the necessary appurtenances, including provision for the teaching and study of botany as a pure science, and as applied to arts and industries, and, in their discretion, the provision of a house as a residence for the keeper of the garden. The keeper may, if the trustees

think proper, be the professor of botany in the University. It is especially provided that this bequest is to be in addition to the sum already spent by the University and other bodies on the teaching of botany. The garden is to be known as the Cruickshank Botanical Garden, in memory of the donor's late brother, Dr. Alexander Cruickshank, and it is to be held by the trustees in all time for the use, enjoyment and behoof of the University of Aberdeen and of the general public, without any preferable right on either, except as it may be thought right by the trustees to set apart class-rooms and laboratories for the use of either body. Professor Trail, the professor of botany, in his opening address to his class at the beginning of the summer session, on April 25th, alluded to this gift, and to the great advantage which it would be to the botanical department at the University. He also touched on the changes which the last few years had worked in this department, and on the great facilities which were now offered to botanical students, especially since the opening of the handsome new laboratories and class-rooms last year.

A LETTER addressed to the *London Times* by 'A Kew Student' protests against opening the gardens to the public in the mornings, as follows: As holder of a student's ticket which will be rendered practically useless by the change, may I be allowed to explain how the proposed opening of the gardens at 10 a. m. will affect students at Kew? The difficulty does not lie in the large or small number of visitors, but in a rule—namely, that students must abstain from handling plants after the admission of the public. I am informed that this regulation is so far necessary by way of example that it is observed by the authorities themselves. The public recognize a working gardener, but if one stranger were seen to interfere with plants others would naturally see no harm in doing the same. Where the convenience of the public is concerned, individual protests appear selfish and ridiculous, but I am informed that there are 800 students upon the books, and surely their interests deserve consideration, inasmuch as Kew-gardens are intended to be used for scientific purposes. As an individual I should have been satisfied and

very grateful if students had been permitted to retain certain mornings of the week, and I shall be glad if you will allow me to point out that the recent decision has caused disappointment and vexation to at least one worker. My ticket carries the privilege of gathering certain specimens for botanical research; it will be difficult for students, who like myself live in London, to use the gardens before 10 a. m., and it is out of the question that I, or any other student, should collect plants out of doors or work in hothouses during public hours.

At a meeting of the Zoological Society of London on April 19th a communication was read from Dr. Bashford Dean, describing further evidence of the existence of possible paired fins in the problematical Devonian organism *Palæospondylus*. He maintained his former views, as opposed to those of Dr. R. H. Traquair expressed in a former communication to the Society. Mr. Smith Woodward, in communicating this paper, remarked that he was inclined to agree with Dr. Traquair's interpretations of the markings on the stone round the skeletons of *Palæospondylus* as entirely due to inorganic agencies. In support of this view he exhibited the specimen from Dr. Traquair's collection noticed by Dr. Dean.

UNIVERSITY AND EDUCATIONAL NEWS.

THE new buildings of the University of Virginia will be dedicated in June, the exercises beginning on the 12th. It is expected that three Presidents of the United States, Mr. McKinley, Mr. Cleveland and Mr. Harrison will take part in the ceremonies.

THE building for the museums of the University of Pennsylvania is now nearing completion, and plans are being drawn for a building for the departments of physiology, pathology and pharmacology.

A BUILDING for the College of Agriculture of Ohio State University has been completed during the present year at a cost of \$70,000.

CONGREGATION, at Oxford, passed, on May 4th, a decree which will require the ratification